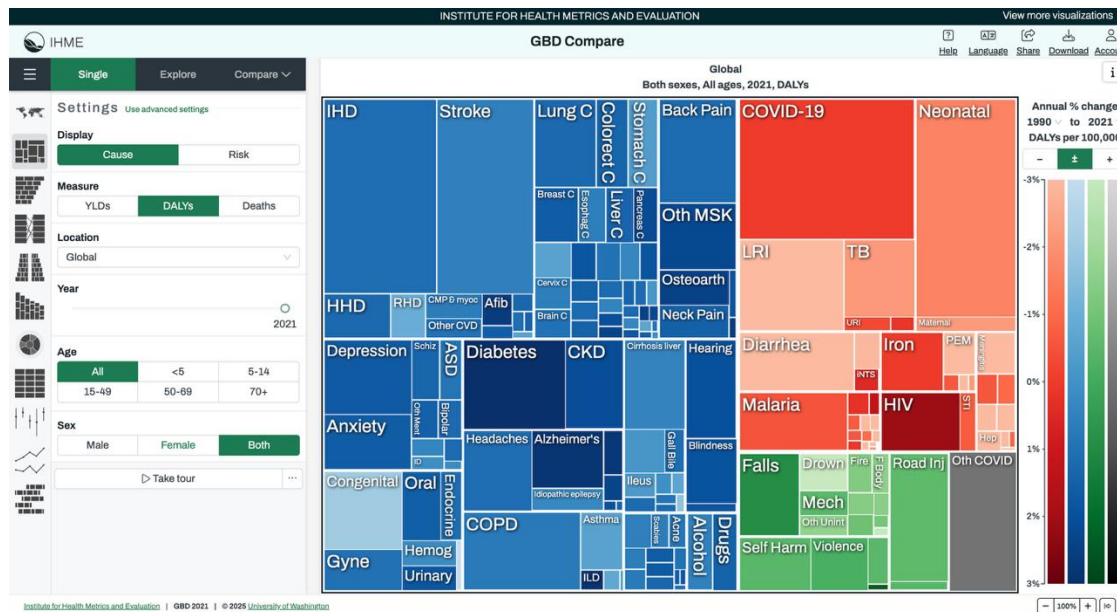# Accessibility meetup

May 27, 2025
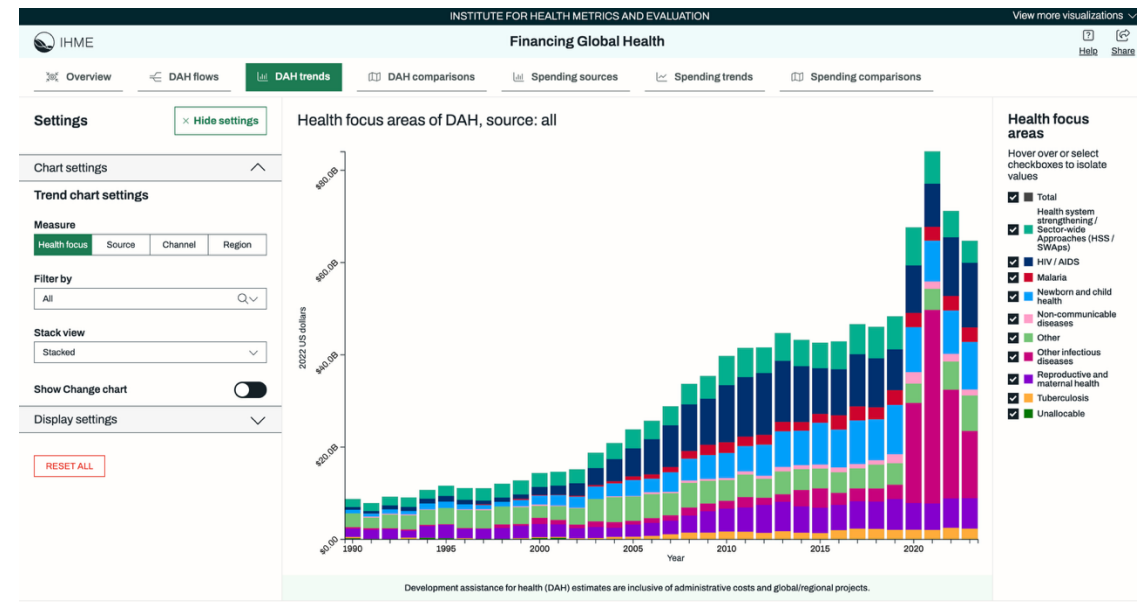
IHME Data visualization team

- Part of IHME's Global Impact Group (GIG)

- We develop and maintain 50+ visualization tools for users to interact with IHME research and data

- Have been collaborating with the UW accessibility team for ~4 months; this presentation intent is to share some of the discussions and outcomes of these meetings

Visualization tool examples

GBD Compare tool tree map in various hues of blue, green and red

FGH tool stacked bar chart with various bright colors of bars

Keyboard – WCAG 2.1.1

- **Guideline**: everything can be done with a keyboard except freehand movements
- **Challenge**: Currently we do not enable keyboard users or screen reader users to see chart tooltips – Financing Global Health
- **Accessibility team advice / Data viz plan**:
  - In general, think about how to represent the data rather than how to solely visualize it
    - Describe it in words
    - Provide data tables
    - Sonification, potentially

Keyboard – WCAG 2.1.1

- **Accessibility team advice / Data viz plan continued**:
  - Enable keyboard access to our charts and tooltips – currently looking into using HighCharts to improve visualization tab navigability
  - Add chart descriptions – verbosity is OK; describe what is shown on the chart and its axes in exhaustive detail – Pandemic Recovery Survey
    - Add a Read More/Less ellipsis that reads ONLY the truncated copy to screen reader users
  - Add text tables to charts where those tables are of manageable size
  - Offer the complete data set shown on a chart as a csv download

Use of Color – WCAG 1.4.1

- **Guideline**: color is not the only way of distinguishing information; difference in relative luminance between the colors leads to a contrast of 3:1 or greater
- **Challenge**: many of our complex visualizations use a variety of colors to convey information – Financing Global Health
- **Accessibility team advice / Data viz plan**:
  - 3 main solutions to help users differentiate between colors in our tools:
    1. Make visualizations keyboard navigable with accessible tooltips
    2. Add text tables with an option to download the data

Use of Color – WCAG 1.4.1

- **Accessibility team advice / Data viz plan continued**:
  - Three main solutions to help users differentiate between colors in our tools:
    3. Differentiate colors with the following alternatives:
       - Allowing a user to select an option to fade all other colors – Financing Global Health (FGH)
       - Adding in patterning – HC Demo
       - Including a legend that resets colors where the color gradient is close – FGH
       - Implementing a highlight feature – Tracking personal healthcare spending (DEX)

Status Messages – WCAG 4.1.3

- **Guideline**: make users aware of important changes in content

- **Challenge**: our visualizations make use of dynamic controls that update chart content instantaneously – Financing Global Health

- **Accessibility team advice / Data viz plan**:
  - Focus on the outcome of the action the user has taken and announce that outcome for screen reader users via an aria-live region

Status Messages – WCAG 4.1.3

- **Accessibility team advice / Data viz plan continued:**
  - Focus on the outcome of the action the user has taken and announce that outcome for screen reader users via an aria-live region
  - Options:
    - Announce the control selection and a general, alert of change to the data chart region; allow users to navigate to the chart region to hear the updated title and description
    - Develop a component that tracks the outcome of that change somewhere near the chart itself:
      - Exhaustive chart title example
      - Visible but collapsible (ellipsis or otherwise) chart description examples

Discussion and Questions

Interested in learning more?

- [Here are the questions and resolutions](#) from the UW accessibility x Viz Team collaboration meetings
- Other great accessibility x viz resources:
  - [WCAG 2.1 guidelines](#)
  - [Aria Authoring Practices Guide (APG)](#)
  - [Web Accessibility in Mind (WebAIM)](#)
  - [Deque University – accessibility courses](#)